



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D350-748-201**  
**Job Sheet 174676**



Part No: D350-748-201

Job Qty: 1 ea

Part Name: Aft Crosstube AS350 / AS355



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/20/18

Job Tracking No:

Due Date: 7/20/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV H IPP Rev: A New Issue 06-07-05 JLM IPP Rev: B Update qty of MS21042L5 06-09-12 KJ IPP Rev C Combined manufacturing 08.04.02 EC verified: DD IPP Rev: D 08-06-24 revD as per dwg DD verified: EC IPP Rev: E 08.12.11 Step17 was step 21 KJ Verified: EC IPP Rev: F 10.08.04 added QSI010 4.3 DD ver: EC IPP REV: G ADD UNDER BEND COMMENT 12-05-28 JLM IPP REV: H 12.11.05 as per dwg D350-748-141G DD ver: JLM IPP REV: I 15.03.19 as per dwg D350-748-241 revH dd ver: jlm

Ship Via:

### Bill of Materials

### Job Routing

| Op No | Operation           | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off     |
|-------|---------------------|-------|------------|----------|-----------|---------|-----------------------|-----------|--------------|
|       |                     |       |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |              |
| 90    | Start up Operation  | 1 Ea  | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Start Up Crosstubes-1 |           | GP 18-07-20  |
| 110   | CNC Bend Crosstubes | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 2.94    | CNC Bend Crosstube    |           | GP 18-07-20  |
| 120   | Crosstubes          | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 2.65    | Crosstubes-2          |           | GP 18-07-20  |
| 125   | Outsource           | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Outsource1            |           | CT 18-7-20   |
| 126   | Packaging           | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Packaging2            | DAS       | GP 18-07-24  |
| 127   | QC                  | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | QC15                  | 16        | 202/67/30    |
| 128   | Crosstubes          | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 2.65    | Crosstubes-2          | 9-89      | GP 18-08-02  |
| 130   | Crosstubes          | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 1.85    | Crosstubes-2          |           | GP 18-08-02  |
| 140   | QC                  | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | QC6                   |           | 10 18-08-03  |
| 150   | Outsource           | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Outsource3            |           | CT 18-08-04  |
| 160   | Packaging           | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Packaging2            |           | AUG 3 1 2018 |
| 170   | QC                  | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | QC6                   |           | 38           |
| 174   | Outsource           | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Outsource2            |           | 9-89         |
| 176   | Packaging           | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | Packaging2            |           | SEP 13 2018  |
| 178   | QC                  | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | QC5                   |           | 38           |
| 180   | SprayPaint          | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.88    | Spray Paint           |           | SEP 13 2018  |
| 190   | QC                  | 1 pcs | 7/19/18    | 7/19/18  | 0.00      | 0.00    | QC14                  |           | OCT 02 2018  |
| 200   | Crosstubes          | 1 pcs | 7/20/18    | 7/20/18  | 0.00      | 1.85    | Crosstubes-2          |           | SEP 23 2018  |
| 210   | QC                  | 1 pcs | 7/20/18    | 7/20/18  | 0.00      | 0.00    | QC5                   |           | OCT 02 2018  |
| 220   | Packaging           | 1 pcs | 7/20/18    | 7/20/18  | 0.00      | 0.00    | Packaging1-3          |           | OCT 02 2018  |
| 230   | QC                  | 1 pcs | 7/20/18    | 7/20/18  | 0.00      | 0.00    | QC4                   |           | OCT 13 2018  |
| 235   | DC                  | 1 pcs | 7/20/18    | 7/20/18  | 0.00      | 0.00    | DC                    |           | OCT 13 2018  |
| 240   | Packaging           | 1 pcs | 7/20/18    | 7/20/18  | 0.00      | 0.00    | Packaging3-1          |           | OCT 15 2018  |
| 250   | QC21-FG             | 1 Ea  | 7/20/18    | 7/20/18  | 0.00      | 0.00    | QC21                  |           | OCT 18 2018  |

Part Op 110 - Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT \*\*\*\*\*UNDER

Descriptions: BEND .225" PER SIDE\*\*\*\*\*

120 - \*\*\*\*VERIFY CROSSTUBE DIMENSIONS AS PER DWG\*\*\*\*

125 - ISSUE P/O TO METCOR: 10040561

127 - \*\*\*MARK CUT LINES\*\*\*

128 - CUT TUBE AT HEIGHT ON FAI SHEET Twist: 0.137

130 - 2- Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs, 3-Deburr 4- Engrave Part # and Batch # as per

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube <input type="checkbox"/></td> <td style="border: none;">Cross tube <input type="checkbox"/></td> <td style="border: none;">Water Jet <input type="checkbox"/></td> <td style="border: none;">Engineering <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Machining <input type="checkbox"/></td> <td style="border: none;">Small Fab <input type="checkbox"/></td> <td style="border: none;">Prod. Eng. Coord. <input type="checkbox"/></td> <td style="border: none;">Quality <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Thermoforming <input type="checkbox"/></td> <td style="border: none;">Finishing <input type="checkbox"/></td> <td style="border: none;">Rec/Store/Packaging <input type="checkbox"/></td> <td style="border: none;">Other <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Large Fab <input type="checkbox"/></td> <td style="border: none;">Composite <input type="checkbox"/></td> <td style="border: none;">Supplier <input type="checkbox"/></td> <td></td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                               |                                                                                                                    |                                   | Skid-tube <input type="checkbox"/>     | Cross tube <input type="checkbox"/>         | Water Jet <input type="checkbox"/>        | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/>   | Small Fab <input type="checkbox"/>       | Prod. Eng. Coord. <input type="checkbox"/>  | Quality <input type="checkbox"/>            | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/>  | Other <input type="checkbox"/>         | Large Fab <input type="checkbox"/>                       | Composite <input type="checkbox"/>  | Supplier <input type="checkbox"/>       |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Skid-tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Cross tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water Jet <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Engineering <input type="checkbox"/>          |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Machining <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Small Fab <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Prod. Eng. Coord. <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Quality <input type="checkbox"/>              |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Thermoforming <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Finishing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rec/Store/Packaging <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Other <input type="checkbox"/>                |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Large Fab <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Composite <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Supplier <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                               |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Step #: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                               | MRB (QSI042) Approval                                                                                              |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| <div style="position: relative;"> <div style="position: absolute; top: 10px; left: 10px; font-size: 0.8em;">           DART Aerospace Ltd.<br/>           1270 Aberdeen Street<br/>           Kentonbury, ON K4A 1K7<br/>           CANADA<br/>           TEL: 1 813 632-8200<br/>           Email: dart@dartaero.com<br/>           www.dartaero.com         </div> <div style="position: absolute; top: 40%; left: 40%; font-size: 0.8em;">           Date: 07/20/18         </div> <div style="position: absolute; top: 50%; left: 20%; transform: rotate(-90deg); font-weight: bold; font-size: 1.2em;">           DART<br/>AEROSPACE         </div> <div style="position: absolute; top: 50%; left: 25%; font-weight: bold; font-size: 0.9em;">           Container No: S094598<br/>           Part: D350-748-201<br/>           Job No: 174676<br/>           Serial No/Batch: S094598<br/>           Revision:<br/>           Inspector:<br/>           Exp Date:<br/>           Instructions:         </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               | Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| <b>Root Cause</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | <table style="width:100%; border: none;"> <tr> <td style="border: none;">Crushing <input type="checkbox"/></td> <td style="border: none;">Contamination <input type="checkbox"/></td> <td style="border: none;">Wrong Stock Pulled <input type="checkbox"/></td> <td style="border: none;">Positioned Wrong <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Heat Treat <input type="checkbox"/></td> <td style="border: none;">Countersink <input type="checkbox"/></td> <td style="border: none;">Out of Sequence <input type="checkbox"/></td> <td style="border: none;">Outside Dimensions <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Wave/Twist in Tube <input type="checkbox"/></td> <td style="border: none;">Cut Too Short <input type="checkbox"/></td> <td style="border: none;">Off-set <input type="checkbox"/></td> <td style="border: none;">Over/Under tolerance <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Marks/Chatter <input type="checkbox"/></td> <td style="border: none;">Instructions Incomplete/Unclear <input type="checkbox"/></td> <td style="border: none;">Mislabeled <input type="checkbox"/></td> <td style="border: none;">Part Incorrect <input type="checkbox"/></td> </tr> <tr> <td></td> <td style="border: none;">Drill Holes <input type="checkbox"/></td> <td style="border: none;">Fit/Function <input type="checkbox"/></td> <td style="border: none;">Part Lost/Missing <input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td style="border: none;">Misaligned/off center <input type="checkbox"/></td> <td style="border: none;">Part Moved <input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="border: none;">Drawing <input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="border: none;">Finish <input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="border: none;">Misread <input type="checkbox"/></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="border: none;">Turning Sequence <input type="checkbox"/></td> </tr> </table> |                                               |                                                                                                                    | Crushing <input type="checkbox"/> | Contamination <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/> | Heat Treat <input type="checkbox"/>  | Countersink <input type="checkbox"/> | Out of Sequence <input type="checkbox"/> | Outside Dimensions <input type="checkbox"/> | Wave/Twist in Tube <input type="checkbox"/> | Cut Too Short <input type="checkbox"/> | Off-set <input type="checkbox"/>   | Over/Under tolerance <input type="checkbox"/> | Marks/Chatter <input type="checkbox"/> | Instructions Incomplete/Unclear <input type="checkbox"/> | Mislabeled <input type="checkbox"/> | Part Incorrect <input type="checkbox"/> |  | Drill Holes <input type="checkbox"/> | Fit/Function <input type="checkbox"/> | Part Lost/Missing <input type="checkbox"/> |  |  | Misaligned/off center <input type="checkbox"/> | Part Moved <input type="checkbox"/> |  |  |  | Drawing <input type="checkbox"/> |  |  |  | Finish <input type="checkbox"/> |  |  |  | Misread <input type="checkbox"/> |  |  |  | Turning Sequence <input type="checkbox"/> |
| Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Contamination <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Positioned Wrong <input type="checkbox"/>     |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Countersink <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Outside Dimensions <input type="checkbox"/>   |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Cut Too Short <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Over/Under tolerance <input type="checkbox"/> |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
| Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Instructions Incomplete/Unclear <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Part Incorrect <input type="checkbox"/>       |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drill Holes <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Part Lost/Missing <input type="checkbox"/>    |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Moved <input type="checkbox"/>           |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |
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| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                                                                                                                    |                                   |                                        |                                             |                                           |                                      |                                      |                                          |                                             |                                             |                                        |                                    |                                               |                                        |                                                          |                                     |                                         |  |                                      |                                       |                                            |  |  |                                                |                                     |  |  |  |                                  |  |  |  |                                 |  |  |  |                                  |  |  |  |                                           |



Dwg D350-748-241 5-Remove all marks from tube within limits of D350-748-241

150 - Issue P/O: 040694

160 - Ensure certificate of conformity is attached

174 - ISSUE P/O TO ACCUREN:

40076 SEP 13 2018

DAS

13

180 - 1-Prime inside and out crosstube as per QSI 005 4.2

Prime 13877

9-89 Paint 138738

190 - Then, Wrap in plastic bag to protect from scratches

200 - INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER 2-Install supports with Proseal 890 per D350-748-241 and QSI 015 EXP: 5096394 exp 3/19 3-Install supports clamps Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS.

235 - Photocopy bluefile & type labels per PPPD350-748-201 CHG003

16 CHG004 see attachment

240 - Identify and pack for shipping as per PPPD350-748-201 PPP Rev:

DAS

21

9-89

### Job BOM

| Part / Item     | Component Name           | Quantity      | Operation             | Container |
|-----------------|--------------------------|---------------|-----------------------|-----------|
| D350-748-241TRN | Crosstube Turning Detail | 1 (1 ea)      | 90-Start up Operation |           |
| ALS4-1032-225   | Rivnut                   | 1 Ea (1 ea)   | 200-Crosstubes        |           |
| D3502-1         | Support                  | 2 Ea (2 ea)   | 200-Crosstubes        |           |
| D5123-7         | Clamp Cushion            | 2 Ea (2 ea)   | 200-Crosstubes        |           |
| MS21920-20      | Clamp                    | 2 Ea (2 ea)   | 200-Crosstubes        |           |
| MS27039-1-10    | Screw                    | 1 Ea (1 ea)   | 200-Crosstubes        |           |
| NAS1149D0363J   | Washer                   | 1 Ea (1 ea)   | 200-Crosstubes        |           |
| AN4-41A         | Bolt                     | 8 Ea (8 ea)   | 220-Packaging         |           |
| AN4-6A          | Bolt                     | 16 Ea (16 ea) | 220-Packaging         |           |
| AN5-32A         | Bolt                     | 4 Ea (4 ea)   | 220-Packaging         |           |
| D3500-1         | Saddle                   | 4 Ea (4 ea)   | 220-Packaging         |           |
| D3501-1         | Bushing                  | 16 Ea (16 ea) | 220-Packaging         |           |
| MS21042L4       | Nut                      | 24 Ea (24 ea) | 220-Packaging         |           |
| MS21042L5       | Nut                      | 4 Ea (4 ea)   | 220-Packaging         |           |
| NAS1149D0463J   | Washer                   | 32 Ea (32 ea) | 220-Packaging         |           |
| NAS1149D0563J   | Washer                   | 8 Ea (8 ea)   | 220-Packaging         |           |

### Job Allocations

| Operation             | Component Part                     | Required | Inventory | Allocated |
|-----------------------|------------------------------------|----------|-----------|-----------|
| 90-Start up Operation | D350-748-241TRN                    | 1        | 0         | 0         |
| 200-Crosstubes        | ALS4-1032-225 <u>FM136 579-601</u> | 1        | 1,149     | 0         |
|                       | D3502-1 <u>F163478</u>             | 2        | 62        | 0         |
|                       | D5123-7 <u>163264</u>              | 2        | 145       | 0         |
|                       | MS21920-20 <u>5024478</u>          | 2        | 108       | 0         |
|                       | MS27039-1-10 <u>5071834</u>        | 1        | 313       | 0         |
|                       | NAS1149D0363J <u>5068661</u>       | 1        | 3,131     | 0         |
| 220-Packaging         | AN4-41A                            | 8        | 230       | 0         |
|                       | AN4-6A                             | 16       | 620       | 0         |
|                       | AN5-32A                            | 4        | 114       | 0         |
|                       | D3500-1                            | 4        | 101       | 0         |
|                       | D3501-1                            | 16       | 99        | 0         |
|                       | MS21042L4                          | 24       | 2,466     | 0         |
|                       | MS21042L5                          | 4        | 722       | 0         |
|                       | NAS1149D0463J                      | 32       | 3,386     | 0         |
|                       | NAS1149D0563J                      | 8        | 2,107     | 0         |

### Part Specifications

Specifications could not be found.

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

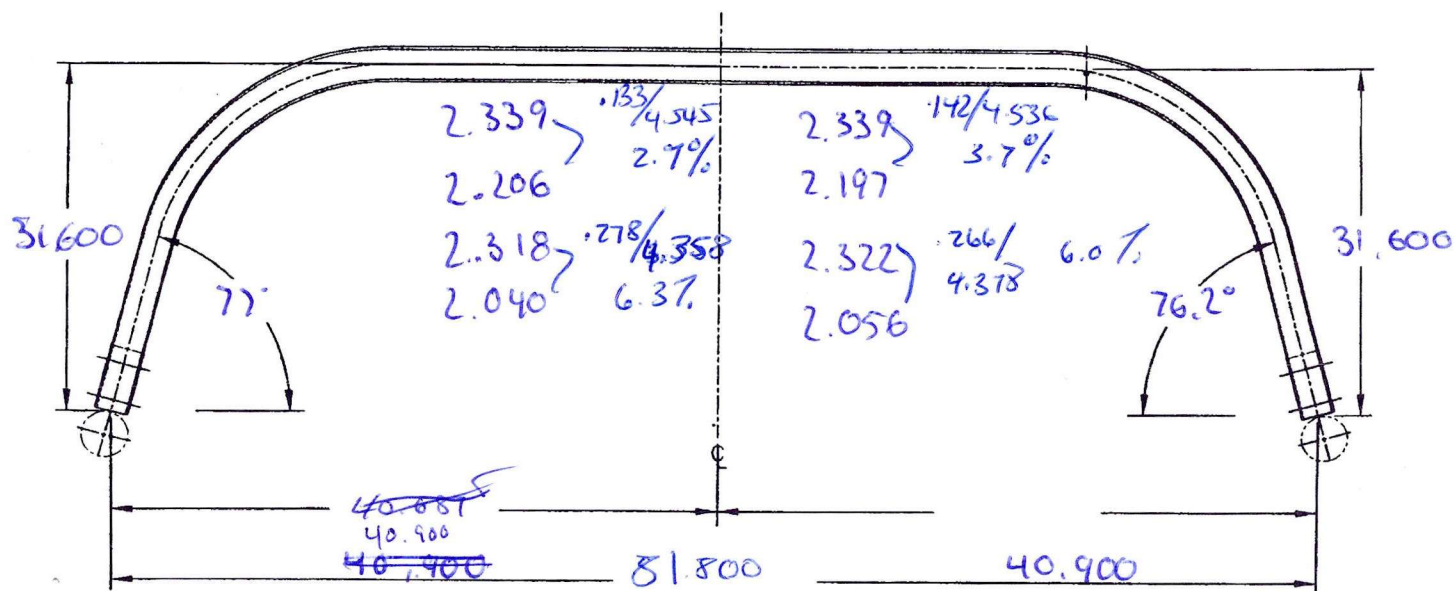
Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube <input type="checkbox"/></td> <td style="width:15%;">Cross tube <input type="checkbox"/></td> <td style="width:15%;">Water Jet <input type="checkbox"/></td> <td style="width:15%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> |                                               |                                             |                                                                                                                        | Skid-tube <input type="checkbox"/> | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/>    | Engineering <input type="checkbox"/>   | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/>    | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/>  | Thermoforming <input type="checkbox"/>   | Finishing <input type="checkbox"/>          | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>            | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/>            |                                     |                                              |                                           |                                                |                                        |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |                                          |                                           |                                           |                                           |                                  |                                 |                                        |                                             |                                                |                                    |                                |                                               |                                 |                                               |                               |                                         |                                                 |                                                            |                                             |                                            |                                |                                        |                                          |                                     |                                   |                                      |                                  |                                  |                                     |                                        |                                     |                                 |                                             |                                                          |                                       |                                  |                                        |                                      |                                                |                                           |
| Skid-tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Engineering <input type="checkbox"/>          |                                             |                                                                                                                        |                                    |                                     |                                       |                                        |                                    |                                       |                                            |                                   |             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| Machining <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Small Fab <input type="checkbox"/>                                                                                                                                                 | Prod. Eng. Coord. <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Quality <input type="checkbox"/>              |                                             |                 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| Thermoforming <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Finishing <input type="checkbox"/>                                                                                                                                                 | Rec/Store/Packaging <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                              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| Large Fab <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| <b>Description Work Order Deviation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Disposition</b>                            |                                             | Completed By _____<br><br>Lead hand / Supervisor Approval Verification _____<br><br>QC / QA Coordinator Approval _____ |                                    |                                     |                                       |                                        |                                    |                                       |                                            |                                   |                                          |                                             |                                              |                                           |                                    |                                    |                                              |                                     |                                              |                                           |                                                |                                        |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| <b>Root Cause</b><br><table style="width:100%; border: none;"> <tr> <td style="width:15%;">Environment <input type="checkbox"/></td> <td style="width:15%;">No Re-verification <input type="checkbox"/></td> </tr> <tr> <td>Design <input type="checkbox"/></td> <td>Operator <input type="checkbox"/></td> </tr> <tr> <td>Doc/Data <input type="checkbox"/></td> <td>Offset/Setup <input type="checkbox"/></td> </tr> <tr> <td>Equip/Tooling <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> </tr> <tr> <td>Handling/Pre <input type="checkbox"/></td> <td>Training <input type="checkbox"/></td> </tr> <tr> <td>Material <input type="checkbox"/></td> <td>Use for Testing <input type="checkbox"/></td> </tr> <tr> <td>Internal Transport <input type="checkbox"/></td> <td>Poor Information <input type="checkbox"/></td> </tr> <tr> <td>Tribal Knowledge <input type="checkbox"/></td> <td>Rushing <input type="checkbox"/></td> </tr> <tr> <td>LOA <input type="checkbox"/></td> <td>Product Improvement <input type="checkbox"/></td> </tr> <tr> <td>Substation <input type="checkbox"/></td> <td>Process Improvement <input type="checkbox"/></td> </tr> <tr> <td>Past Expiry Date <input type="checkbox"/></td> <td>Manufacturing Process <input type="checkbox"/></td> </tr> <tr> <td>Misidentified <input type="checkbox"/></td> <td>Past Due <input type="checkbox"/></td> </tr> </table> |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Environment <input type="checkbox"/>          | No Re-verification <input type="checkbox"/> | Design <input type="checkbox"/>                                                                                        | Operator <input type="checkbox"/>  | Doc/Data <input type="checkbox"/>   | Offset/Setup <input type="checkbox"/> | Equip/Tooling <input type="checkbox"/> | Supplier <input type="checkbox"/>  | Handling/Pre <input type="checkbox"/> | Training <input type="checkbox"/>          | Material <input type="checkbox"/> | Use for Testing <input type="checkbox"/> | Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/>    | Tribal Knowledge <input type="checkbox"/> | Rushing <input type="checkbox"/>   | LOA <input type="checkbox"/>       | Product Improvement <input type="checkbox"/> | Substation <input type="checkbox"/> | Process Improvement <input type="checkbox"/> | Past Expiry Date <input type="checkbox"/> | Manufacturing Process <input type="checkbox"/> | Misidentified <input type="checkbox"/> | Past Due <input type="checkbox"/> | <b>FAULT CATEGORY</b><br><table style="width:100%; border: none;"> <tr> <td style="width:15%;">Pressure/Forced <input type="checkbox"/></td> <td style="width:15%;">Temperature/Cure <input type="checkbox"/></td> <td style="width:15%;">Power Loss/Surge <input type="checkbox"/></td> <td style="width:15%;">Positioned Wrong <input type="checkbox"/></td> </tr> <tr> <td>Bending <input type="checkbox"/></td> <td>Set-up <input type="checkbox"/></td> <td>Folio/Program <input type="checkbox"/></td> <td>Outside Dimensions <input type="checkbox"/></td> </tr> <tr> <td>Centre Not Concentric <input type="checkbox"/></td> <td>BOM/Route <input type="checkbox"/></td> <td>Grain <input type="checkbox"/></td> <td>Over/Under tolerance <input type="checkbox"/></td> </tr> <tr> <td>Cracks <input type="checkbox"/></td> <td>Broken/Damage/Defect <input type="checkbox"/></td> <td>Weld <input type="checkbox"/></td> <td>Part Incorrect <input type="checkbox"/></td> </tr> <tr> <td>Crimp/Kink/Ripple/Wave <input type="checkbox"/></td> <td>Inspection Incomplete/Unqualified <input type="checkbox"/></td> <td>Wrong Stock Pulled <input type="checkbox"/></td> <td>Part Lost/Missing <input type="checkbox"/></td> </tr> <tr> <td>Cuffs <input type="checkbox"/></td> <td>Contamination <input type="checkbox"/></td> <td>Out of Sequence <input type="checkbox"/></td> <td>Part Moved <input type="checkbox"/></td> </tr> <tr> <td>Crushing <input type="checkbox"/></td> <td>Countersink <input type="checkbox"/></td> <td>Off-set <input type="checkbox"/></td> <td>Drawing <input type="checkbox"/></td> </tr> <tr> <td>Heat Treat <input type="checkbox"/></td> <td>Cut Too Short <input type="checkbox"/></td> <td>Mislabeled <input type="checkbox"/></td> <td>Finish <input type="checkbox"/></td> </tr> <tr> <td>Wave/Twist in Tube <input type="checkbox"/></td> <td>Instructions Incomplete/Unclear <input type="checkbox"/></td> <td>Fit/Function <input type="checkbox"/></td> <td>Misread <input type="checkbox"/></td> </tr> <tr> <td>Marks/Chatter <input type="checkbox"/></td> <td>Drill Holes <input type="checkbox"/></td> <td>Misaligned/off center <input type="checkbox"/></td> <td>Turning Sequence <input type="checkbox"/></td> </tr> </table> |  |  | Pressure/Forced <input type="checkbox"/> | Temperature/Cure <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/> | Bending <input type="checkbox"/> | Set-up <input type="checkbox"/> | Folio/Program <input type="checkbox"/> | Outside Dimensions <input type="checkbox"/> | Centre Not Concentric <input type="checkbox"/> | BOM/Route <input type="checkbox"/> | Grain <input type="checkbox"/> | Over/Under tolerance <input type="checkbox"/> | Cracks <input type="checkbox"/> | Broken/Damage/Defect <input type="checkbox"/> | Weld <input type="checkbox"/> | Part Incorrect <input type="checkbox"/> | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/> | Part Lost/Missing <input type="checkbox"/> | Cuffs <input type="checkbox"/> | Contamination <input type="checkbox"/> | Out of Sequence <input type="checkbox"/> | Part Moved <input type="checkbox"/> | Crushing <input type="checkbox"/> | Countersink <input type="checkbox"/> | Off-set <input type="checkbox"/> | Drawing <input type="checkbox"/> | Heat Treat <input type="checkbox"/> | Cut Too Short <input type="checkbox"/> | Mislabeled <input type="checkbox"/> | Finish <input type="checkbox"/> | Wave/Twist in Tube <input type="checkbox"/> | Instructions Incomplete/Unclear <input type="checkbox"/> | Fit/Function <input type="checkbox"/> | Misread <input type="checkbox"/> | Marks/Chatter <input type="checkbox"/> | Drill Holes <input type="checkbox"/> | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/> |
| Environment <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| Equip/Tooling <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Handling/Pre <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| Material <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Internal Transport <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| Tribal Knowledge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| Substation <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| Past Expiry Date <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| Misidentified <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Pressure/Forced <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Bending <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Set-up <input type="checkbox"/>                                                                                                                                                    | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                    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| Centre Not Concentric <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BOM/Route <input type="checkbox"/>                                                                                                                                                 | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Over/Under tolerance <input type="checkbox"/> |                                             |                                                                                                                        |                                    |                                     |                                       |                                        |                                    |                                       |                                            |                                   |             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| Cracks <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Cuffs <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Drawing <input type="checkbox"/>              |                                             |                                                                                                                        |                                    |                                     |                                       |                                        |                                    |                                       |                                            |                                   |             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| Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Cut Too Short <input type="checkbox"/>                                                                                                                                             | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                       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| Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Instructions Incomplete/Unclear <input type="checkbox"/>                                                                                                                           | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Misread <input type="checkbox"/>              |                                             |                                                                                                                        |                                    |                                     |                                       |                                        |                                    |                                       |                                            |                                   |             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| Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Drill Holes <input type="checkbox"/>                                                                                                                                               | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Turning Sequence <input type="checkbox"/>     |                                             |                                                                                                                        |                                    |                                     |                                       |                                        |                                    |                                       |                                            |                                   |             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|                                                    |  |                     |              |
|----------------------------------------------------|--|---------------------|--------------|
| <b>DART AEROSPACE LTD</b>                          |  | <b>Work Order:</b>  | 174676       |
| <b>Description:</b> Crosstube High Aft (AS350/355) |  | <b>Part Number:</b> | D350-748-201 |
| <b>Inspection Dwg:</b> D350-748-241 <b>Rev:</b> H  |  | <b>Page 1 of 1</b>  |              |

| Required Dimension | Min   | Max   |
|--------------------|-------|-------|
| Height             | 31.10 | 31.60 |
| 1/2 Span           | 40.77 | 41.03 |
| Angle              | 75    | 77    |
| Total Span         | 81.54 | 82.06 |
| Bending Passes     | 7     | --    |
| Crushing           | --    | 8%    |
| Twist              | --    | 0.38  |



|                                  | Side A | Side B |
|----------------------------------|--------|--------|
| <b>Bending Passes</b>            | 38     | 39     |
| <b>Crushing</b>                  |        |        |
| <b>Comments</b>                  |        |        |
| Side A      Side B               |        |        |
| TOP - 2.9%      TOP - 3.7%       |        |        |
| Bottom - 6.3%      Bottom - 6.0% |        |        |

|                        |          |
|------------------------|----------|
| <b>QC15 Inspection</b> | DAS      |
| <b>Date</b>            | 18/07/30 |

| Rev | Date     | Change                                     | Revised by | Approved |
|-----|----------|--------------------------------------------|------------|----------|
| A   | 07.02.06 | New Issue                                  | KJ/JM      |          |
| B   | 10.08.23 | Dwg Rev updated                            | KJ         |          |
| C   | 12.04.16 | Added bending, crushing & twist dimensions | KJ         |          |
| D   | 12.07.31 | Dwg Rev updated                            | KJ         |          |
| E   | 13.02.27 | Dwg Rev updated                            | KJ         |          |
| F   | 14.02.13 | Crushing & twist dimensions revised        | KJ         |          |
| G   | 14.11.10 | Height dimension revised                   | KJ         |          |
| H   | 15.07.20 | Crushing dimension revised                 | KJ         |          |

| Item | Qty  | Part Number     | Description                                                |
|------|------|-----------------|------------------------------------------------------------|
|      | -241 |                 |                                                            |
| 1    | X    | D350-748-241    | CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)                     |
| 2    | 1    | D6015-125       | CROSSTUBE (OR D6018-125)                                   |
| 3    | 2    | D3502-1         | SUPPORT                                                    |
| 4    | 2    | D5123-7         | CLAMP CUSHION                                              |
| 5    | 1    | AELS-1032-225   | INSERT                                                     |
| 6    | 1    | NAS1149D0363J   | WASHER (OR AN960JD10)                                      |
| 7    | 2    | MS21920-20      | CLAMP (OR MS21920-21/-22, PER DART SPEC. M-MS21920-21/-22) |
| 8    | 1    | MS27039-1-10    | SCREW                                                      |
| 9    | A/R  | PROSEAL 890 B-2 | SEALANT, AMS-S-8802 CLASS B-2                              |

#### GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6015-125 OR D6018-125  
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.  
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2  
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF  
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- WEIGHT: 29.85 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

#### TURNING

- BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS2759/1E AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.

#### BENDING

- ALL DIMENSIONS FOR BENT TUBE ARE POST STRESS RELIEF
- BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- AFTER BENDING, STRESS RELIEVE TUBE AT 650°F ±0.25°F FOR A MINIMUM OF 2 HRS AND ALLOW TO COOL TO AMBIENT TEMPERATURE (REF AMS2759/1E).
- MAX TWIST AFTER STRESS RELIEF: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

#### ASSEMBLY

- TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

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UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO. 174676 MJS

1803-21

RELEASED

2015 MAR 18

97 EGN 15-547

|            |                                                                                                                                          |    |          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| H          | D5123-7 WAS D3595-063-395, MS21920-20 WAS -22, ALLOWABLE CRUSHING NOW 8% WAS 7%, 14.00 WAS 14.37 (D5-2), 12.32 WAS 12.69 (D5-3)          | CP | 15.02.25 |
| G          | RMV ABRASION STRIP, SUPPORT NOW W/ PROSEAL & CUSHION, ADD STRESS RELIEF, LONGER CUFF, NOW TRIM'D AFTER BEND, ADD WALL DIMS & UPDATE TOL. | CP | 12.09.12 |
| F          | ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)      | CP | 10.11.23 |
| E          | REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)            | RF | 09.09.30 |
| D          | MAG. PARTICLE AND CAD PLATE AS MFD.                                                                                                      | CP | 06.10.31 |
| C          | ADD CAD PLATING                                                                                                                          | CP | 06.08.14 |
| B          | ADD D6018-125 & PRIME AND PAINT                                                                                                          | CP | 06.06.30 |
| A          | NEW ISSUE                                                                                                                                | CP | 06.03.31 |
| REV.       | DESCRIPTION                                                                                                                              | BY | DATE     |
| DESIGN     | 97                                                                                                                                       |    |          |
| DRAWN      | 97                                                                                                                                       |    |          |
| CHECKED    | ALS                                                                                                                                      |    |          |
| MFG. APPR. | ALS                                                                                                                                      |    |          |
| APPROVED   | ALS                                                                                                                                      |    |          |
| DE APPR.   | ALS                                                                                                                                      |    |          |
| DATE       | 15.02.25                                                                                                                                 |    |          |

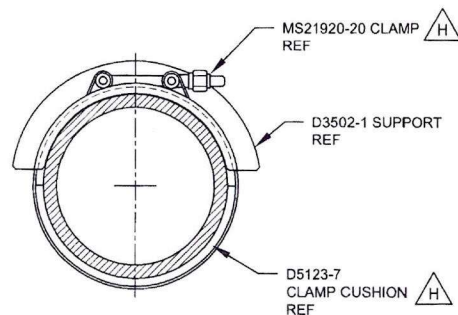
**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. H  
D350-748-241 SHEET 1 OF 4  
TITLE SCALE  
CROSSTUBE (AS 350/355 HI AFT) NTS

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**D350-748-241  
ASSEMBLY DETAIL**



**SECTION A-A** D4-2  
SCALE 6X

INSTALL THIS SIDE ONLY, AFTER FINISH:  
AELS-1032-225 INSERT  
NAS1149D0363J WASHER  
MS27039-1-10 SCREW

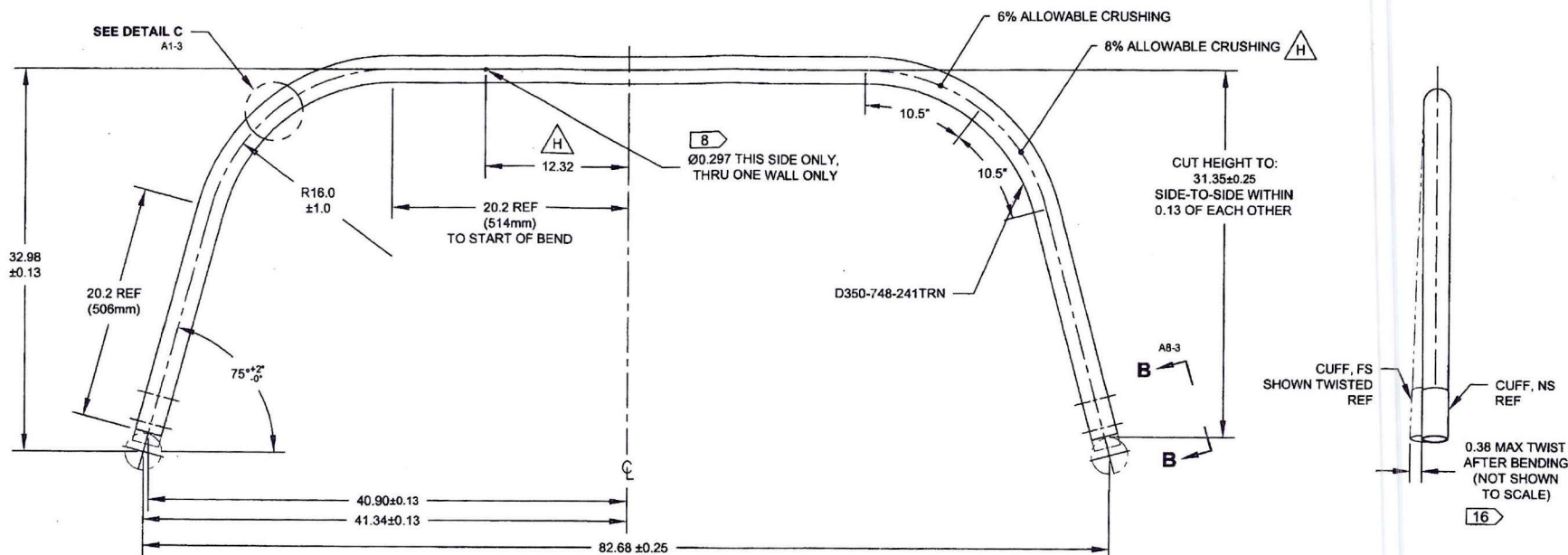
17 18  
D3502-1 SUPPORT  
MS21920-20 CLAMP (OR -21/-22)  
D5123-7 CLAMP CUSHION  
2 PL

D350-748-241  
BENT TUBE

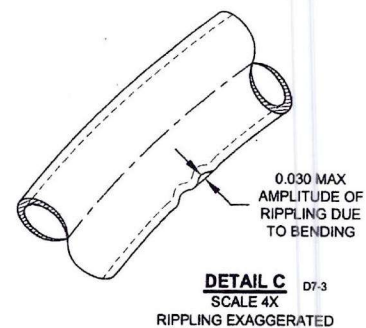
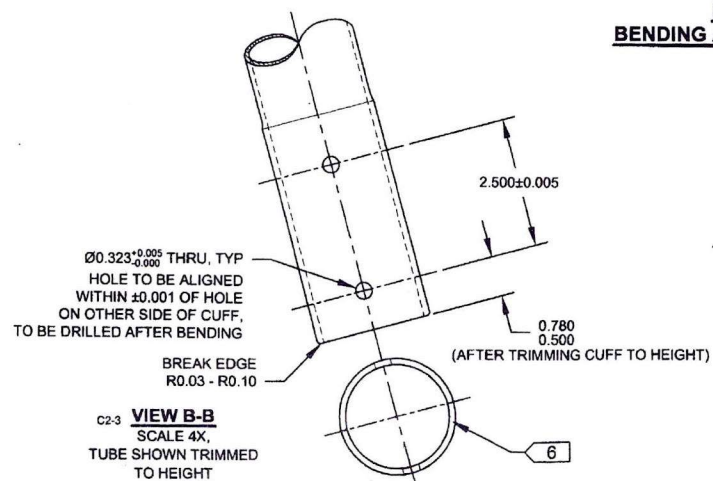
**RELEASED**

2015 MAR 18 47

|            |          |                                                                                                                                                                                                                                                                                        |              |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | 90       | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                              |              |
| DRAWN      | 90       | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                            |              |
| CHECKED    | AJS      | DRAWING NO.                                                                                                                                                                                                                                                                            | REV. H       |
| MFG. APPR. | N        | D350-748-241                                                                                                                                                                                                                                                                           | SHEET 2 OF 4 |
| APPROVED   | GP       | TITLE                                                                                                                                                                                                                                                                                  | SCALE        |
| DE APPR.   | HP       | CROSSTUBE (AS 350/355 HI AFT)                                                                                                                                                                                                                                                          | NTS          |
| DATE       | 15.02.25 | <small>COPYRIGHT © 2006 BY DART AEROSPACE LTD<br/>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS<br/>NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT<br/>WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |              |



**D350-748-241**  
**BENDING AND DRILLING DETAIL** 10



**RELEASED**  
2015 MAR 18

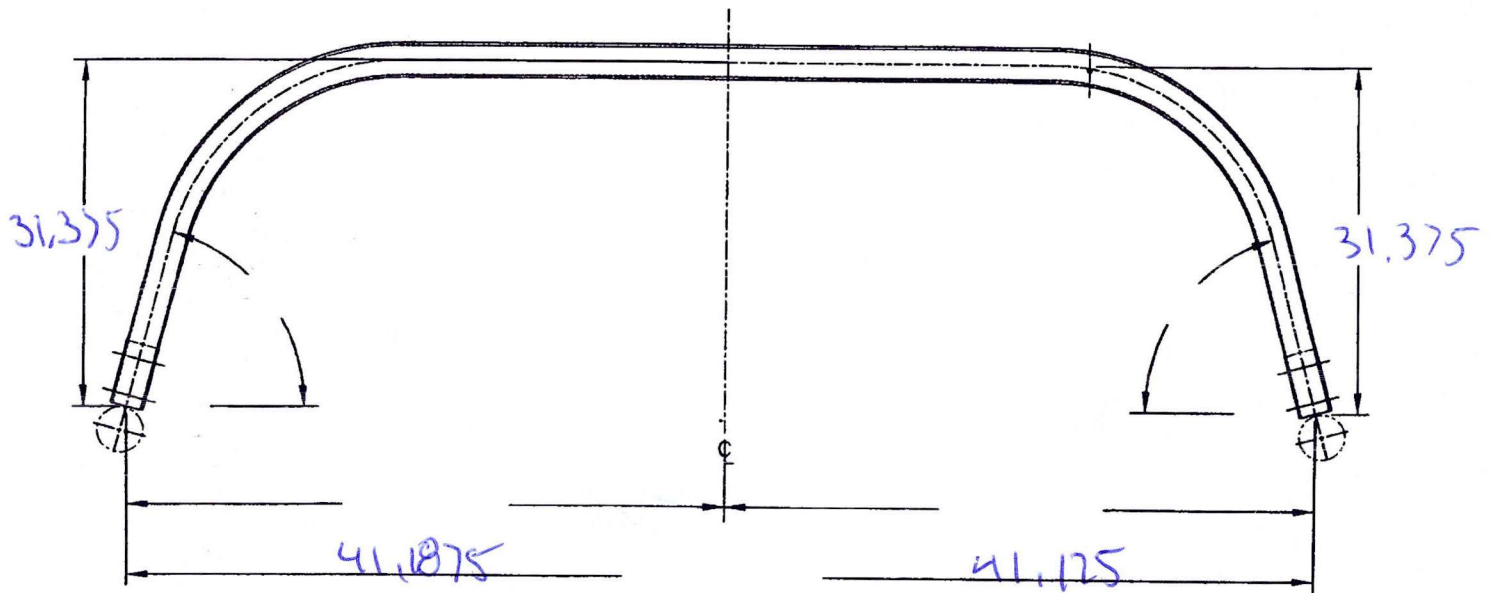
|                                                                                                                                                                                                                              |          |                                        |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                                       | 90       | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN                                                                                                                                                                                                                        | 90       | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED                                                                                                                                                                                                                      | ASS      | DRAWING NO.                            | REV. H       |
| MFG. APPR.                                                                                                                                                                                                                   |          | D350-748-241                           | SHEET 3 OF 4 |
| APPROVED                                                                                                                                                                                                                     |          | TITLE                                  | SCALE        |
| DE APPR.                                                                                                                                                                                                                     |          | CROSSTUBE (AS 350/355 HI AFT)          | NTS          |
| DATE                                                                                                                                                                                                                         | 15.02.25 | COPYRIGHT © 2008 BY DART AEROSPACE LTD |              |
| THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY OTHER MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |          |                                        |              |





|                                                    |  |                     |                     |
|----------------------------------------------------|--|---------------------|---------------------|
| <b>DART AEROSPACE LTD</b>                          |  | <b>Work Order:</b>  |                     |
| <b>Description:</b> Crosstube High Aft (AS350/355) |  | <b>Part Number:</b> | <b>D350-748-201</b> |
| <b>Inspection Dwg:</b> D350-748-241 <b>Rev:</b> H  |  |                     | <b>Page 1 of 1</b>  |

| Required Dimension | Min   | Max   |
|--------------------|-------|-------|
| Height             | 31.10 | 31.60 |
| 1/2 Span           | 40.77 | 41.03 |
| Angle              | 75    | 77    |
| Total Span         | 81.54 | 82.06 |
| Bending Passes     | 7     | --    |
| Crushing           | --    | 8%    |
| Twist              | --    | 0.38  |



|                | Side A | Side B |
|----------------|--------|--------|
| Bending Passes |        |        |
| Crushing       |        |        |
| Comments       |        |        |
|                |        |        |
|                |        |        |
|                |        |        |
|                |        |        |

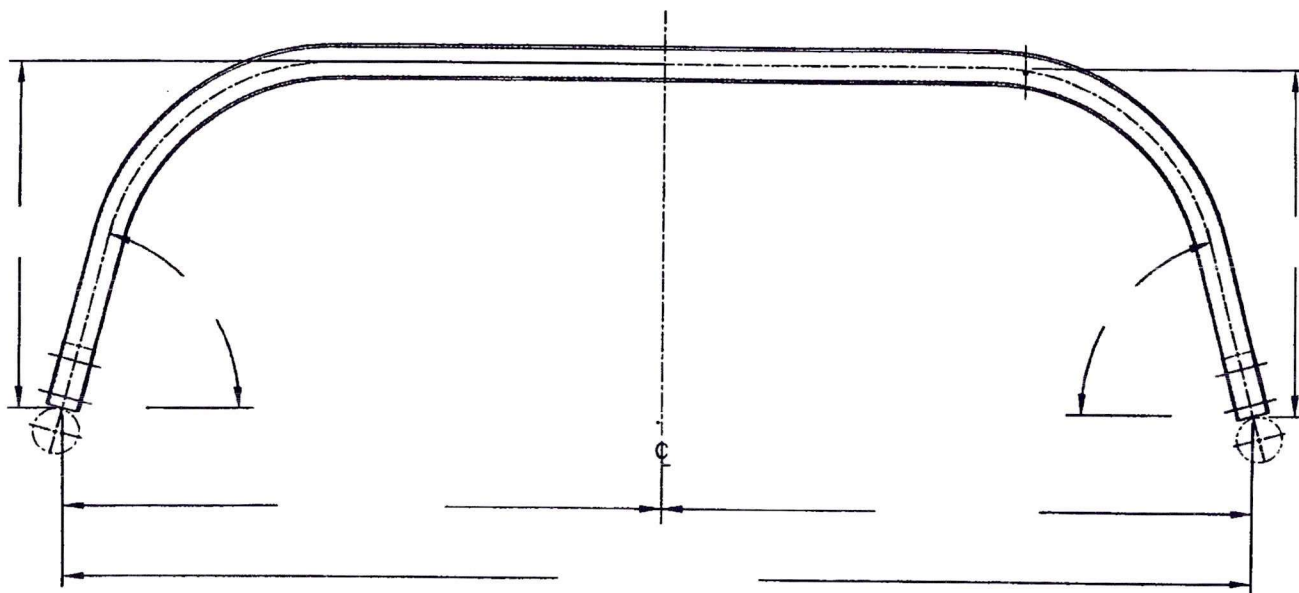
|                 |  |
|-----------------|--|
| QC15 Inspection |  |
| Date            |  |

| Rev | Date     | Change                                     | Revised by | Approved |
|-----|----------|--------------------------------------------|------------|----------|
| A   | 07.02.06 | New Issue                                  | KJ/JM      |          |
| B   | 10.08.23 | Dwg Rev updated                            | KJ         |          |
| C   | 12.04.16 | Added bending, crushing & twist dimensions | KJ         |          |
| D   | 12.07.31 | Dwg Rev updated                            | KJ         |          |
| E   | 13.02.27 | Dwg Rev updated                            | KJ         |          |
| F   | 14.02.13 | Crushing & twist dimensions revised        | KJ         |          |
| G   | 14.11.10 | Height dimension revised                   | KJ         |          |
| H   | 15.07.20 | Crushing dimension revised                 | KJ         |          |



|                                                    |               |                     |                     |
|----------------------------------------------------|---------------|---------------------|---------------------|
| <b>DART AEROSPACE LTD</b>                          |               | <b>Work Order:</b>  |                     |
| <b>Description:</b> Crosstube High Aft (AS350/355) |               | <b>Part Number:</b> | <b>D350-748-201</b> |
| <b>Inspection Dwg:</b> D350-748-241                | <b>Rev:</b> H |                     | <b>Page 1 of 1</b>  |

| Required Dimension | Min   | Max   |
|--------------------|-------|-------|
| Height             | 31.10 | 31.60 |
| 1/2 Span           | 40.77 | 41.03 |
| Angle              | 75    | 77    |
| Total Span         | 81.54 | 82.06 |
| Bending Passes     | 7     | --    |
| Crushing           | --    | 8%    |
| Twist              | --    | 0.38  |



|                | Side A | Side B |
|----------------|--------|--------|
| Bending Passes |        |        |
| Crushing       |        |        |
| Comments       |        |        |
|                |        |        |
|                |        |        |
|                |        |        |
|                |        |        |

|                 |  |
|-----------------|--|
| QC15 Inspection |  |
| Date            |  |

| Rev | Date     | Change                                     | Revised by | Approved |
|-----|----------|--------------------------------------------|------------|----------|
| A   | 07.02.06 | New Issue                                  | KJ/JM      |          |
| B   | 10.08.23 | Dwg Rev updated                            | KJ         |          |
| C   | 12.04.16 | Added bending, crushing & twist dimensions | KJ         |          |
| D   | 12.07.31 | Dwg Rev updated                            | KJ         |          |
| E   | 13.02.27 | Dwg Rev updated                            | KJ         |          |
| F   | 14.02.13 | Crushing & twist dimensions revised        | KJ         |          |
| G   | 14.11.10 | Height dimension revised                   | KJ         |          |
| H   | 15.07.20 | Crushing dimension revised                 | KJ         |          |



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

# PURCHASE ORDER

## PO040561

Tel (613) 632-5200

**Supplier:** MEI001-VC  
Metcor Inc.  
560 Boul. Arthur Sauve  
Saint-Eustache  
QC  
J7R 5A8 Canada  
Phone: 450 473 1884  
Fax: 450 491 5498

**PO No:** PO040561

**PO Date:** 7/20/18

**Due Date:** 7/27/18

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Phone:

**Via:** Ground

**Pymt Terms:** Net 30

**Freight Terms:**

**Special Comments:**

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

### Items

| Line Item         | Job    | Part         | Description                                                                                                                                                                                                                                                                                                                                                                      | Status | Account | Due Date | Order Quantity | Received Quantity | Balance  | Unit Price (CAD) | Extended Price    |
|-------------------|--------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-------------------|----------|------------------|-------------------|
| 1                 | 174650 | D350-748-201 | Aft Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06<br>ISSUE P/O TO METCOR:<br>AFTER BENDING:<br>STRESS RELIEF AT 650° F ± 25° F FOR A MINIMUM OF 2 HRS AIR COOL TO AMBIENT TEMPERATURE<br>note: crosstube made from 4130 seamless steel tube<br><br>DETAIL C OF C REQUIRED | Firmed | -       | 7/27/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$205.00/pcs     | \$205.00          |
|                   | 174651 |              |                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 7/27/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$205.00/pcs     | \$205.00          |
|                   | 174676 |              |                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 7/27/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$205.00/pcs     | \$205.00          |
|                   | 174674 |              |                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 7/27/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$205.00/pcs     | \$205.00          |
|                   | 174673 |              |                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 7/27/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$205.00/pcs     | \$205.00          |
| <b>Sub Total:</b> |        |              |                                                                                                                                                                                                                                                                                                                                                                                  |        |         |          | <b>5</b>       | <b>0</b>          | <b>5</b> |                  | <b>\$1,025.00</b> |

**Grand Total: \$1,025.00**

### Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 7/20/18 2:42 PM dart.tsimiklis.chrisoula

CT.



# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

## Reçu de livraison

Delivery Receipt

| BON DE TRAVAIL<br>Order | EXPÉDITEUR<br>Shipper ID | BON D'EXPÉDITION<br>Shipper |
|-------------------------|--------------------------|-----------------------------|
| 329270                  | 1                        | 129797                      |

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053



LIVRÉ À /Shipped To

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

| COMMANDE DU CLIENT<br>Customer PO | BON DE LIVRAISON DU CLIENT<br>Customer Shipper No. | TYPE DE MATÉRIEL<br>Material Type | DATE DE LA COMMANDE<br>Order Date | TRANSPORTEUR<br>Carrier |
|-----------------------------------|----------------------------------------------------|-----------------------------------|-----------------------------------|-------------------------|
| 40561                             |                                                    | Steel                             | 2018/7/20                         | CLIENT                  |

| QUANTITÉ<br>Quantity | No. PIÈCE /<br>Part No. | NOM DE LA PIÈCE /<br>Part Name | DESCRIPTION DE LA PIÈCE<br>Part Description | POIDS<br>Weight |
|----------------------|-------------------------|--------------------------------|---------------------------------------------|-----------------|
|----------------------|-------------------------|--------------------------------|---------------------------------------------|-----------------|

5 D350-748-201  
CROSSTUBE  
(5) D350-748-101  
JOB 174650,174651,174676,174674,174673,  
1 NIL

| TYPE DE CONTENEUR<br>Container Type | # DE CONTENEURS<br># Of Containers | COMMENTAIRES CONTENEUR<br>Container Comments |
|-------------------------------------|------------------------------------|----------------------------------------------|
| NIL                                 | 1                                  |                                              |

### CERTIFICAT

|                               |  |
|-------------------------------|--|
| <b>EMPAQUETAGE</b><br>Packing |  |
|-------------------------------|--|

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 5

POIDS EXPÉDIÉ / Weight Shipped : 150,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

APPROUVÉ  
ACCEPTE

### CERTIFICAT

QUANTITÉ EXPÉDIÉE / Quantity Shipped: 5

POIDS EXPÉDIÉ / Weight Shipped : 150,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2018/07/23

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

## Certificat de Conformité Certificate of Compliance

| BON DE TRAVAIL<br>order | CHARGEMENT<br>load |
|-------------------------|--------------------|
| 329270                  | 1                  |

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

| COMMANDE DU CLIENT<br>customer po | CLASSIFICATION PIECE<br>part classification | MATÉRIEL<br>material | MAÎTRE D'OEUVRE<br>prime contractor | PROGRAM |
|-----------------------------------|---------------------------------------------|----------------------|-------------------------------------|---------|
| 40581                             | N/A                                         | Steel                |                                     |         |

### SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

STRESS REL

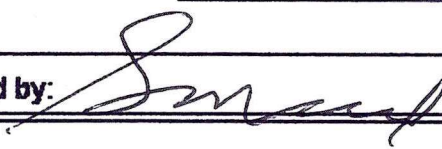
SAE AMS 2759/1 REV.E

EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results  
Visual

| QUANTITÉ<br>quantity | POIDS<br>weight | DESCRIPTION DES PIÈCES<br>parts description                                                           |
|----------------------|-----------------|-------------------------------------------------------------------------------------------------------|
| 5                    | 150             | D350-748-201<br>CROSSTUBE<br>(5) D350-748-101<br>JOB 174650, 174651, 174676, 174674, 174673,<br>1 NIL |

### COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2018-07-23

APPROUVÉ



# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

## Certificat de Conformité Détail

Detailed Certificate of Compliance

| BON DE TRAVAIL<br>order | CHARGEMENT<br>load |
|-------------------------|--------------------|
| 329270                  | 1                  |

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

| COMMANDE DU CLIENT<br>customer po                                                                         | CLASSIFICATION PIECE<br>part classification | MATÉRIEL<br>material                                                                                  | MAÎTRE D'OEUVRE<br>prime contractor | PROGRAM |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------|---------|
| 40561                                                                                                     | N/A                                         | Steel                                                                                                 |                                     |         |
| <u>SPÉCIFICATIONS DU PROCÉDÉ</u><br>processing specifications                                             |                                             |                                                                                                       |                                     |         |
| STRESS REL                                                                                                |                                             |                                                                                                       |                                     |         |
| SAE AMS 2759/1 REV.E                                                                                      |                                             |                                                                                                       |                                     |         |
| EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results |                                             |                                                                                                       |                                     |         |
| Visual                                                                                                    |                                             |                                                                                                       |                                     |         |
| QUANTITÉ<br>quantity                                                                                      | POIDS<br>weight                             | DESCRIPTION DES PIÈCES<br>parts description                                                           |                                     |         |
| 5                                                                                                         | 150                                         | D350-748-201<br>CROSSTUBE<br>(5) D350-748-101<br>JOB 174650,174651,174676,174674,174673,<br><br>1 NIL |                                     |         |

### COMMENTAIRES / comments

STRESS RELIEF 650F, 2 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of AMS2759 & AMS2750.

All HT operations were in compliance with AMS2759 and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with AMS2759 and the purchase order and was found to meet the requirements.

This document and any attached documents may contain confidential or proprietary information and may be subject to export control laws and regulations. If you are not the intended recipient, you are notified that any dissemination, copying of this e-mail and any attachments thereto or use of their contents by any means whatsoever is strictly prohibited. Unauthorized export or re-export is prohibited.

Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec AMS2759 et AMS 2750.

Le TT a été fait tel que requis par AMS2759 et toutes les vérifications et les tests demandés ont été faites et documentés.

Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec AMS2759 et le bon de commande et le matériel rencontre les exigences spécifiées.

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APPROUVÉ par / Approved by:

Isabel Otero  
ah Technician



DATE: 2018-07-23



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO040694**

**Supplier:** CAD002-VC  
Cadorath Coating  
2150 Logan Ave.  
Winnipeg  
MB  
R2R 0J2 Canada  
Phone: 204 633 9420  
Fax: 204 633 8033

**PO No:** PO040694  
**PO Date:** 8/7/18  
**Due Date:** 8/16/18  
**Purchase Order Revision:**  
**Revision Date:**  
**Ship-To Contact:** Phone:

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground  
**Pymt Terms:** Net 30  
**Freight Terms:**  
**Special Comments:**

## Items

| Line Item         | Job    | Part                   | Description                                                                                                                                                                                                                                                                                                                                                                                                  | Status | Account | Due Date | Order Quantity | Received Quantity | Balance  | Unit Price (CAD) | Extended Price    |
|-------------------|--------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-------------------|----------|------------------|-------------------|
| 1                 | 174643 | D350-748-101           | FWD Crosstube AS350 / AS355<br>: TC STC SH06-27 Issue 2,<br>FAA STC SR02359NY<br>11/03/04, EASA STC<br>EASA.10016903 Revision 2<br>10/09/03, BRAZIL 2009S04-04<br>09/04/06<br>Issue P/O:<br><br>Stress relief at 375degree for 5hrs<br>Magnetic Particle Inspect per ASTM E1444<br>Cad Plate per AMS-QQ-P-416B, Class 1, Type 2<br>Embrittle relief at 375 deegree for 8 hrs, Chromate Treat<br>C of C req'd | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$805.00/pcs     | \$805.00          |
| 174634            | 1 X    | <del>AUG 15 2018</del> |                                                                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$805.00/pcs     | \$805.00          |
| 174618            | 1 X    | <del>AUG 15 2018</del> |                                                                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$805.00/pcs     | \$805.00          |
| 174635            | 1 X    | <del>AUG 15 2018</del> |                                                                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$805.00/pcs     | \$805.00          |
| 174633            | 1 X    | <del>AUG 15 2018</del> |                                                                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$805.00/pcs     | \$805.00          |
| <b>Sub Total:</b> |        |                        |                                                                                                                                                                                                                                                                                                                                                                                                              |        |         |          | <b>5</b>       | <b>0</b>          | <b>5</b> |                  | <b>\$4,025.00</b> |



| Items                                                                                                                                                                                                                                                  |        |              |                                                                                                                                                                                                                                                                                                                                                                                     |        |         |          |                |                   |         |                  |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-------------------|---------|------------------|----------------|
| Line Item                                                                                                                                                                                                                                              | Job    | Part         | Description                                                                                                                                                                                                                                                                                                                                                                         | Status | Account | Due Date | Order Quantity | Received Quantity | Balance | Unit Price (CAD) | Extended Price |
| 2                                                                                                                                                                                                                                                      | 174676 | D350-748-201 | Aft Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06 Issue P/O:<br><br>Stress relief at 375degree for 5hrs<br>Magnetic Particle Inspect per ASTM E1444<br>Cad Plate per AMS-QQ-P-416B, Class 1, Type 2<br>Embrittle relief at 375 defree for 8 hrs, Chromate Treat C of C req'd | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$805.00/pcs     | \$805.00       |
|                                                                                                                                                                                                                                                        | 174673 | 1            | <del>AUG 15 2018</del>                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$805.00/pcs     | \$805.00       |
|                                                                                                                                                                                                                                                        | 181141 | 1            | <del>AUG 15 2018</del>                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$805.00/pcs     | \$805.00       |
|                                                                                                                                                                                                                                                        | 181140 | 1            | <del>AUG 15 2018</del>                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$805.00/pcs     | \$805.00       |
|                                                                                                                                                                                                                                                        | 174674 | 1            | <del>AUG 15 2018</del>                                                                                                                                                                                                                                                                                                                                                              | Firmed | -       | 8/16/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$805.00/pcs     | \$805.00       |
| Sub Total:                                                                                                                                                                                                                                             |        |              |                                                                                                                                                                                                                                                                                                                                                                                     |        |         |          | 5              | 0                 | 5       |                  | \$4,025.00     |
|                                                                                                                                                                                                                                                        |        |              |                                                                                                                                                                                                                                                                                                                                                                                     |        |         |          |                |                   |         | Grand Total:     | \$8,050.00     |
| Order Notes                                                                                                                                                                                                                                            |        |              |                                                                                                                                                                                                                                                                                                                                                                                     |        |         |          |                |                   |         |                  |                |
| Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit <a href="http://www.dartaerospace.com">www.dartaerospace.com</a> for further explanation. |        |              |                                                                                                                                                                                                                                                                                                                                                                                     |        |         |          |                |                   |         |                  |                |

DAS  
38  
9-891X ~~AUG 15 2018~~  
5X AUG 31 2018

Plex 8/7/18 1:13 PM dart.tsimiklis.chrisoula

CD

# Packing Slip



## Cadorath Coating

2150 Logan Avenue, Winnipeg, Manitoba R2R-0J2

Phone: (204) 633-9420 Fax: (204) 633-8033

INVOICE NUMBER:

S97017

Net 2% Interest Per Month charged on Overdue Accounts.

Any claims for shortages, overcharges, or damaged goods must be made within seven (7) days from receipt of goods.

**Sold To:**

Dart Aerospace Ltd.  
1270 Aberdeen St.

Hawksbury, ON K6A 1K7

**ShipTo:**

| Customer Order #: | Date Received: | Terms:      | G.S.T. #:         | Ship Via: | Ship Date:  |
|-------------------|----------------|-------------|-------------------|-----------|-------------|
| PO040694          | Aug-14-2018    | NET 30 DAYS | 10071 6547 RT0001 |           | Aug-24-2018 |

**Item # Qty P/N & Description**

|    |      |                  |               |
|----|------|------------------|---------------|
| 1  | 1 EA | CROSSTUBE        | S/N S094239 ✓ |
|    |      | P/N d350-748-101 | W/O 185681    |
| 2  | 1 EA | CROSSTUBE        | S/N S093751 ✓ |
|    |      | P/N d350-748-101 | W/O 185682    |
| 3  | 1 EA | CROSSTUBE        | S/N S094573 ✓ |
|    |      | P/N D350-748-201 | W/O 185685    |
| 4  | 1 EA | CROSSTUBE        | S/N S095366 ✓ |
|    |      | P/N D350-748-201 | W/O 185686    |
| 5  | 1 EA | CROSSTUBE        | S/N S095319 ✓ |
|    |      | P/N D350-748-201 | W/O 185687    |
| 6  | 1 EA | CROSSTUBE        | S/N S094587 ✓ |
|    |      | P/N D350-748-201 | W/O 185688    |
| 7  | 1 EA | CROSSTUBE        | S/N S094598 ✓ |
|    |      | P/N D350-748-201 | W/O 185690    |
| 8  | 1 EA | CROSSTUBE        | S/N S093762 ✓ |
|    |      | P/N d350-748-101 | W/O 185691    |
| 9  | 1 EA | CROSSTUBE        | S/N S092985 ✓ |
|    |      | P/N d350-748-101 | W/O 185683    |
| 10 | 1 EA | CROSSTUBE        | S/N S093217 ✓ |
|    |      | P/N d350-748-101 | W/O 185684    |



**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Aug-24-2018

**CONSIGNED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 185690  
**INVOICE #:** 97017

**CONTRACT OR  
PURCHASE ORDER #** PO040694

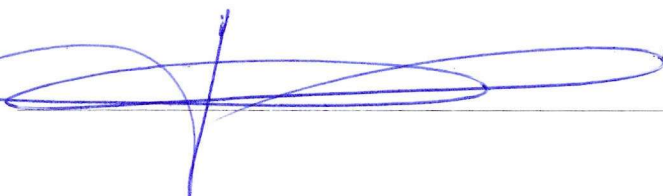
**DESCRIPTION:** CROSSTUBE **QTY** 1  
**P/N #** D350-748-201 **S/N #** S094598

STRESS RELIEF BAKE HEAT CHART # 18-723. MPI IAW ASTM-E-1444. CADMIUM PLATE IAW AMS-QQ-P-416C TYPE 2 YELLOW CLASS 1. FINAL MPI IAW ASTM-E-1444. EMBRITTLE RELIEF BAKE HEAT CHART # 18-750.

DAS  
38  
9-89

**CERTIFICATE:** I certify that the items indicated here on have been inspected and tested and conform to all specifications and requirements detailed on the contract or purchase order.

**Approved Inspector:**





Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO040976**

**Supplier:** SKY002-VC  
Skyservice  
6120 Midfield Road  
Mississauga  
ON  
L5P 1B1 Canada  
Phone: 905-678-5636  
Fax: 905-678-5841

**PO No:** PO040976  
**PO Date:** 9/11/18  
**Due Date:** 9/13/18  
**Purchase Order Revision:**  
**Revision Date:**  
**Ship-To Contact:** Lavoie, Chantal  
Phone: clavoie@dartaero.com

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground  
**Pynt Terms:** Net 30  
**Freight Terms:**  
**Special Comments:**

## **Items**

| Line Item         | Job    | Part         | Description                                                                                                                                                                                                                                                                                                                                         | Status | Account | Due Date | Order Quantity | Received Quantity | Balance  | Unit Price (CAD) | Extended Price  |
|-------------------|--------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-------------------|----------|------------------|-----------------|
| 1                 | 180615 | D4464-041    | Fuel Tank Assembly<br>: Various STC's<br>ISSUE P/O<br>:<br>LIQUID PENETRANT<br>INSPECTION AS PER QSI<br>038 OR<br>LPI AS PER ASTM 1417<br>LEVEL 2                                                                                                                                                                                                   | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| 2                 | 178952 | D407-667-205 | Aft Crosstube - High 407<br>: TC STC SH01-5 Issue 3,<br>FAA STC SR01304NY<br>05/12/15, JCAB JAPAN<br>STC-32-OSA 02/02/28,<br>EASA STC<br>EASA.IM.R.S.01179<br>06/07/03, BRAZIL<br>2009S08-16 09/08/25,<br>BRAZIL 2009S08-17<br>09/08/25<br>*** WEAR LATEX GLOVES<br>WHEN HANDLING<br>CROSSTUBE*** Liquid<br>Penetrant Inspection as per<br>QSI 0380 | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| 179372            |        |              | SEP 13 2018                                                                                                                                                                                                                                                                                                                                         | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| 179373            |        |              | SEP 13 2018                                                                                                                                                                                                                                                                                                                                         | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| 179374            |        |              | SEP 13 2018                                                                                                                                                                                                                                                                                                                                         | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| 181961            |        |              | SEP 13 2018                                                                                                                                                                                                                                                                                                                                         | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| 181962            |        |              | SEP 13 2018                                                                                                                                                                                                                                                                                                                                         | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs    | \$116.17647/pcs  | \$116.18        |
| <b>Sub Total:</b> |        |              |                                                                                                                                                                                                                                                                                                                                                     |        |         |          | <b>6</b>       | <b>0</b>          | <b>6</b> |                  | <b>\$697.06</b> |





Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER PO040976

| Items      |        |              |                                                                                                                                                                                                                                                                                                                                                                                                                              |        |         |          |                |                   |         |                  |                |
|------------|--------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-------------------|---------|------------------|----------------|
| Line Item  | Job    | Part         | Description                                                                                                                                                                                                                                                                                                                                                                                                                  | Status | Account | Due Date | Order Quantity | Received Quantity | Balance | Unit Price (CAD) | Extended Price |
| 3          | 174618 | D350-748-101 | FWD Crosstube AS350 / AS355<br>: TC STC SH06-27 Issue 2,<br>FAA STC SR02359NY<br>11/03/04, EASA STC<br>EASA.10016903 Revision 2<br>10/09/03, BRAZIL<br>2009S04-04 09/04/06<br>Issue P/O:<br><br>Stress relief at 375degree<br>for 5hrs<br>Magnetic Particle Inspect<br>per ASTM E1444<br>Cad Plate per AMS-QQ-P-<br>416B, Class 1, Type 2<br>Embrittle relief at 375<br>deffree for 8 hrs, Chromate<br>Treat<br>C of C req'd | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 174634 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 174639 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 174642 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 174643 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
| Sub Total: |        |              |                                                                                                                                                                                                                                                                                                                                                                                                                              |        |         |          | 5              | 0                 | 5       |                  | \$580.88       |
| 4          | 174673 | D350-748-201 | Aft Crosstube AS350 / AS355<br>: TC STC SH06-27 Issue 2,<br>FAA STC SR02359NY<br>11/03/04, EASA STC<br>EASA.10016903 Revision 2<br>10/09/03, BRAZIL<br>2009S04-04 09/04/06<br>ISSUE P/O TO<br>METCOR:<br>AFTER BENDING:<br>STRESS RELIEF AT 650°<br>F ± 25° F FOR A MINIMUM<br>OF<br>2 HRS AIR COOL TO<br>AMBIENT TEMPERATURE<br>note: crosstube made from<br>4130 seamless steel tube<br><br>DETAIL C OF C<br>REQUIRED      | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 174674 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 174676 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 181140 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
|            | 181141 | 1 X          | SEP 13 2018                                                                                                                                                                                                                                                                                                                                                                                                                  | Firmed | -       | 9/13/18  | 1 pcs          | 0 pcs             | 1 pcs   | \$116.17647/pcs  | \$116.18       |
| Sub Total: |        |              |                                                                                                                                                                                                                                                                                                                                                                                                                              |        |         |          | 5              | 0                 | 5       |                  | \$580.88       |

Plex 9/13/18 7:53 AM dart.lavoie.chanta



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO040976**

| Items     |     |      |             |        |         |          |                |                   |         |                         |
|-----------|-----|------|-------------|--------|---------|----------|----------------|-------------------|---------|-------------------------|
| Line Item | Job | Part | Description | Status | Account | Due Date | Order Quantity | Received Quantity | Balance | Unit Price (CAD)        |
|           |     |      |             |        |         |          |                |                   |         | Extended Price          |
|           |     |      |             |        |         |          |                |                   |         | Grand Total: \$1,975.00 |

## Order Notes

Procurement Quality Clauses  
A005 right of entry  
A012 chemical and physical test report  
A016 personnel qualification  
A017 raw material identification (as applicable)

A022 Apical Processing  
A024 process certifications  
A026 certification of material conformance

A041 quality management system  
A042 dart notification by supplier  
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 9/13/18 7:53 AM dart.lavoie.chantal





Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246

## SUBCONTRACT SHIPPER

### SUBCONTRACT SHIP TO

**Ship To:** Skyservice  
6120 Midfield Road  
Mississauga, ON L5P 1B1 Canada  
**Phone:** 905-678-5636 **Fax:** 905-678-5841

### SHIPPER

**Shipper No:** 614  
**Shipper Date:** 9/13/18  
**Carrier:** \*  
**Ship Via:**  
**Vehicle Reg:**  
**Note:**  
**Freight Terms:**

### Part Information

**Part No:** D350-748-101  
**Cust Part No:** D350-748-101  
**Reference No:**  
**Part Information Note:** DWG REV H IPP Rev:A New Issue 06-07-05 JLM  
IPP Rev:B Update qty of MS21042L5 06-09-12 KJ  
VERIFY BY:DD IPP Rev:C Rev B 07-11-15 DD IPP  
Rev D Combined manufacturing 08.04.02 EC verified  
by: DD IPP Rev:E 08-06-24 revD as per dwg DD  
verified by:EC IPP Rev:F 10.08.04 added QSI010 4.3  
DD verf:EC IPP REV:G ADD UNDER BEND  
COMMENT 12-05-28 JLM IPP REV:H 12.11.05 as  
per dwg D350-748-141G DD verf:JLM IPP REV:I  
15.03.19 as per dwg D350-748-141revH dd verf:jlm  
**Drawing No:**  
**Program:**  
**Program Customer:**  
**Addl Docs:**  
**Commercial:** Product Line: Crosstube - High  
Primary OEM Application: Airbus  
Manufacturer: DART  
Advertised on web?: No  
Shipping Dims & Weights: Metric: L2.29m x W0.86m x  
H0.18m,Actual Weight of 26.31 kg  
Shipping Dims & Weights: Imperial: L90" x W34" x  
H7",Actual Weight of 58 lbs

**Name:** FWD Crosstube AS350 / AS355  
**Product Family:** Landing Gear  
**Piece Weight:** 0 lbs  
**Alloy Type:**  
**Alloy - Temper:** -  
**Description:** TC STC SH06-27 Issue 2, FAA STC SR02359NY  
11/03/04, EASA STC EASA.10016903 Revision 2  
10/09/03, BRAZIL 2009S04-04 09/04/06  
**Quantity:**

### OPERATION

**Operation:** Outsource - 174  
**Description:** ISSUE P/O TO SKYSERVICE: \_\_\_\_\_  
**Note:**

### DETAIL

| Part                                                                                                                                                              | Operation                                          | PO              | Job    | Container | Heat Code | Net Weight (lbs) | Gross Weight (lbs) | Quantity |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------|--------|-----------|-----------|------------------|--------------------|----------|
| <b>D350-748-101</b><br>09/20/2017 LMC Can Only Be Sold To AVIC. Discontinued And Replaced By D350-748-103. Oversized Item, Please Refer To Shipping Instructions. | <b>Outsource</b><br>ISSUE P/O TO SKYSERVICE: _____ | <b>PO040976</b> | 174634 | S093239   |           | 0                | 0                  | 1        |
|                                                                                                                                                                   |                                                    |                 | 174639 | S093544   |           | 0                | 0                  | 1        |
|                                                                                                                                                                   |                                                    |                 | 174642 | S093602   |           | 0                | 0                  | 1        |
|                                                                                                                                                                   |                                                    |                 | 174618 | S093751   |           | 0                | 0                  | 1        |
|                                                                                                                                                                   |                                                    |                 | 174643 | S093762   |           | 0                | 0                  | 1        |
| <b>D350-748-201</b><br>09/20/2017 LMC Can Only Be Sold To Avic. Discontinued And Replaced By D350-748-203.                                                        | <b>Outsource</b><br>ISSUE P/O TO SKYSERVICE: _____ | <b>PO040976</b> | 174673 | S094573   |           | 0                | 0                  | 1        |

9/13/2018

[Dart Hawkesbury] Subcontract Shipper - Lavoie, Chantal

Oversized Item, Please Refer  
To Shipping Instructions.

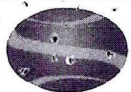
|                                                                                                                                                                                                                                                       |                                                                                                    |                 |              |           |  |          |          |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------|--------------|-----------|--|----------|----------|-----------|
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 174674       | S094587   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 174676       | S094598   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 181140       | S095319   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 181141       | S095366   |  | 0        | 0        | 1         |
| <b>D407-667-205</b>                                                                                                                                                                                                                                   | <b>Outsource</b>                                                                                   | <b>PO040976</b> | 181961       | S103098   |  | 0        | 0        | 1         |
| 09/20/2017JR Oversized Item,<br>Please Refer To Shipping<br>Instructions.                                                                                                                                                                             | *** WEAR LATEX GLOVES WHEN HANDLING<br>CROSSTUBE*** Liquid Penetrant Inspection as<br>per QSI 0380 |                 |              |           |  |          |          |           |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 178952       | S103104   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 179373       | S103183   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 179372       | S103185   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 181962       | S103187   |  | 0        | 0        | 1         |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | 179374       | S103902   |  | 0        | 0        | 1         |
| <b>D4464-041</b>                                                                                                                                                                                                                                      | <b>Outsource</b>                                                                                   | <b>PO040976</b> | 180615       | S100152   |  | 0        | 0        | 1         |
| 09/20/2017JR D4464-041 Aux<br>Fuel Tank Reservoir (Ref.<br>D350-794-141) Is About 0.25"<br>Longer Than The D4055-041<br>Aux Fuel Tank Reservoir (Ref.<br>D350-794-041); Please<br>Contact Technical Support For<br>More Details (Ref.: Case<br>9383). | ISSUE P/O : _____ LIQUID<br>PENETRANT INSPECTION AS PER QSI 038<br>OR LPI AS PER ASTM 1417 LEVEL 2 |                 |              |           |  |          |          |           |
|                                                                                                                                                                                                                                                       |                                                                                                    |                 | <b>Total</b> | <b>17</b> |  | <b>0</b> | <b>0</b> | <b>17</b> |

Driver Signature

Customer Copy

Plex 9/13/18 8:03 AM dart.lavoie.chantal



**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

|                          |                               |               |                     |
|--------------------------|-------------------------------|---------------|---------------------|
| WO #: MWO37372           | Customer: Dart Aerospace Ltd. | Dept: NDT YUL | Reference: PO040976 |
| Descr:                   | PN:                           | S/N:          | Qty: 1              |
| Make:                    | Model:                        | Reg:          | A/C S/N:            |
| TSN:                     | CSN:                          | TSO:          |                     |
| Task: <b>UNSCHEDULED</b> |                               |               | Sequence: 1         |

**Work Required:****CARRY OUT NDT ON:**

1 FUEL TANK , P/N# D4464-041 , J/S# 180615 ✓

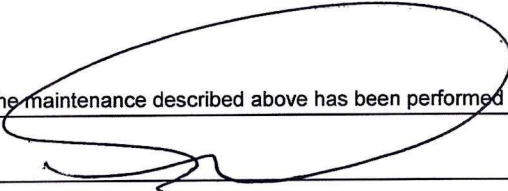
6 AFT CROSSTUBES , P/N# D407-667-205 , J/S# 181961 , 181962 , 179372 , 179373 , 179374 , 178952 ✓

5 FWD CROSSTUBES , P/N# D350-748-101 , J/S# 174618 , 174639 , 174642 , 174643 , 174634 ✓

5 AFT CROSSTUBES , P/N D350-748-201 , J/S# 174673 , 174674 , 174676 , 181140 , 181141 ✓

| <b>Action Taken:</b>                                                            |          |     |     |       |         | Date:       | Initial/Stamp:                                                                                                  |
|---------------------------------------------------------------------------------|----------|-----|-----|-------|---------|-------------|-----------------------------------------------------------------------------------------------------------------|
| LPI C/O IAW ASTM E-1417 REV. 16                                                 |          |     |     |       |         | SEP 11 2018 | <br>DOT-APP<br>20<br>53-89 |
| 3 LEAKS FOUND IN FUEL TANK                                                      |          |     |     |       |         |             |                                                                                                                 |
| REMAINING ITEMS: NO CRACK FOUND                                                 |          |     |     |       |         |             |                                                                                                                 |
| PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142 |          |     |     |       |         |             |                                                                                                                 |
| Description                                                                     | Location | P/N | Qty | Batch | S/N Off | S/N On      |                                                                                                                 |
|                                                                                 |          |     |     |       |         |             |                                                                                                                 |
|                                                                                 |          |     |     |       |         |             |                                                                                                                 |
|                                                                                 |          |     |     |       |         |             |                                                                                                                 |
|                                                                                 |          |     |     |       |         |             |                                                                                                                 |
|                                                                                 |          |     |     |       |         |             |                                                                                                                 |
|                                                                                 |          |     |     |       |         |             |                                                                                                                 |

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

|                                                                                                |                                                                                                        |                      |
|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------|
| Signature:  | ACA/SCA Stamp<br> | Date:<br>SEP 11 2018 |
| Name: <b>RARIK MELIKIAN</b>                                                                    |                                                                                                        |                      |



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246

## Container View (Active) - Master Unit Containers

| Master Unit No | Container No | Part No       | Part Name | From Container | Current Location | Quantity |
|----------------|--------------|---------------|-----------|----------------|------------------|----------|
| 005862         | S117264      | AN4-41A       | Bolt      | S006292        | ST342            | 8        |
| 005862         | S117263      | AN4-6A        | Bolt      | S089455        | ST345            | 16       |
| 005862         | S117262      | AN5-32A       | Bolt      | S019376        | ST336            | 4        |
| 005862         | S117261      | D3500-1       | Saddle    | f163361        | ST403            | 4        |
| 005862         | S117260      | D3501-1       | Bushing   | s093508        | ST037            | 16       |
| 005862         | S117259      | MS21042L4     | Nut       | S094597        | ST303            | 24       |
| 005862         | S117258      | MS21042L5     | Nut       | S083541        | ST303            | 4        |
| 005862         | S117257      | NAS1149D0463J | Washer    | S089299        | ST263            | 32       |
| 005862         | S117256      | NAS1149D0563J | Washer    | S093773        | ST263            | 8        |

Note: Ad hoc query view of Part.dbo.Container where Container.Active = 1.

Plex 10/11/18 9:22 AM dart.quirion.sonia



## 4.0 WEIGHT AND BALANCE

The following weight and balance information is for Dart crosstube installations only. This data should be similar to the existing installation. Differences from the parts removed are the responsibility of the installer.

| DART CROSSTUBE | FWD/<br>AFT | WEIGHT    | STA      | MOMENT      |
|----------------|-------------|-----------|----------|-------------|
| D350-748-101   | Fwd         | 35.2 lb   | 106.3 in | 3742 lb-in  |
| D350-748-103   |             | (16.0 kg) | (2.70 m) | (43.2 kg-m) |
| D350-748-201   | Aft         | 34.7 lb   | 162.4 in | 5635 lb-in  |
| D350-748-203   |             | (15.7 kg) | (4.12 m) | (64.7 kg-m) |

## 5.0 PARTS LIST

| Qty<br>-101 | Qty<br>-103 | Qty<br>-201 | Qty<br>-203 | Part Number   | Description                                      |
|-------------|-------------|-------------|-------------|---------------|--------------------------------------------------|
| X           |             |             |             | D350-748-101  | CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD      |
|             | X           |             |             | D350-748-103  | CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD (SS) |
|             |             | X           |             | D350-748-201  | CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT      |
|             |             |             | X           | D350-748-203  | CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT (SS) |
| 1           |             |             |             | D350-748-141  | CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD          |
|             | 1           |             |             | D350-748-143  | CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD (SS)     |
|             |             | 1           |             | D350-748-241  | CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT          |
|             |             |             | 1           | D350-748-243  | CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT (SS)     |
| *2          | *2          | *2          | *2          | D3502-1       | SUPPORT                                          |
| *2          | *2          | *2          | *2          | D5123-7       | CLAMP CUSHION                                    |
| *1          |             | *1          |             | AELS-1032-225 | INSERT                                           |
|             | *1          |             | *1          | AETC-1032     | INSERT                                           |
| *2          | *2          | *2          | *2          | MS21920-20    | CLAMP (OR MS21920-21/-22)                        |
| *1          |             | *1          |             | MS27039-1-10  | SCREW                                            |
|             | *1          |             | *1          | NAS1685-3-8   | SCREW (OR MS51958-63)                            |
| *1          |             | *1          |             | NAS1149D0363J | WASHER (OR AN960JD10)                            |
|             | *1          |             | *1          | NAS1149C0363R | WASHER (OR AN960C10)                             |
| 4           | 4           | 4           | 4           | D3500-1       | SADDLE                                           |
| 16          | 16          | 16          | 16          | D3501-1       | BUSHING                                          |
| 16          | 16          | 16          | 16          | AN4-6A        | BOLT                                             |
| 8           | 8           | 8           | 8           | AN4-41A       | BOLT                                             |
| 4           | 4           | 4           | 4           | AN5-32A       | BOLT                                             |
| 32          | 32          | 32          | 32          | NAS1149D0463J | WASHER (OR AN960JD416)                           |
| 8           | 8           | 8           | 8           | NAS1149D0563J | WASHER (OR AN960JD516)                           |
| 24          | 24          | 24          | 24          | MS21042L4     | NUT (OR MS21042-4)                               |
| 4           | 4           | 4           | 4           | MS21042L5     | NUT (OR MS21042-5)                               |

\* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/-143/-241/-243 ASSEMBLIES ABOVE

## Change Record

PAGE 1 OF 1

Part Number: D350-748-201

Description: CROSSTUBE HIGH AFT

[illegible]